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## ➤ TABLE OF STANDARD PROPERTIES OF USE AND MEASUREMENT

The properties defined in the table below, are set up according to the technical conditions of use and measurement. These properties are warranted within their variation range and in compliance with the standard technical conditions of use.

Properties APA150XXS	Standard technical conditions	Unit	Nominal values	Min. values	Max. values
Notes		-	-	-	-
Max. no load displacement	Quasistatic excitation, blocked-free	μm	120	108	156
Blocked force	Quasistatic excitation, blocked-free	N	2.7	2.2	3.2
Stiffness	Quasistatic excitation, blocked-free	N/μm	0.023	0.018	0.025
Resonance frequency (free-free)	Harmonic excitation, free-free, on the admittance curve	Hz	4720	4012	5192
Response time (free-free)		ms	0.11	0.10	0.12
Resonance frequency (blocked-free)	Harmonic excitation, blocked-free, on the admittance curve	Hz	1045	888	1150
Response time (blocked-free)		ms	0.48	0.43	0.55
Capacitance	Quasistatic excitation, free-free, on the admittance curve	μF	0.15	0.14	0.20
Max. no load displacement at resonance	Max. harmonic excitation, free-free	μm p-p	96	77	115
Max. voltage at resonance	Max. harmonic excitation, free-free	Vrms	9.00	7.20	10.80
Resolution	Quasistatic excitation	nm	1.20	-	-
Height (in actuation direction)		mm	4.50	4.40	4.60
Length		mm	13.10	13.00	13.20
Width (excl. wedge & wires)		mm	5.00	4.95	5.05
Width (incl. wedge & wires)		mm	9.00	8.00	10.50
Mass		g	1.3	-	-
Standard mechanical interface	2 flat surfaces 1.5*3 mm <sup>2</sup> with a Ø 0.8 mm hole	-	-	-	-
Standard electrical interface	2 PFTE insulated AWG32 wires 80 mm long with Ø 1 banana plug	-	-	-	-

## ➤ PROPERTIES STANDARD TECHNICAL CONDITIONS OF USE AND MEASUREMENT

<b>Free-free</b>	: The actuator is not fixed
<b>Blocked-free</b>	: The actuator is fixed to a mechanical support assumed infinitely stiff
<b>Quasistatic excitation</b>	: AC voltage between -20 and 150 V at 1 Hz
<b>Harmonic excitation</b>	: Voltage of 0.5 Vrms, sinusoidal mode from 0 to 100 kHz
<b>Max. harmonic excitation</b>	: Voltage defined by the measurement of max. displacement, sinus at resonance frequency
<b>Displacement measurement</b>	: Laser interferometer, capacitive displacement sensor
<b>Admittance measurement</b>	: HP 4194 A electrical impedance analyser
<b>Environment</b>	: Ambient temperature (15-25°C) and dry air (Humidity < 50 % rH)

Any technical conditions of use, different from those defined above, can lead to temporary or definitive alterations of properties. Thank you to contact CEDRAT TECHNOLOGIES before using actuators under non standard technical conditions.

## ➤ FACTORY TESTS CARRIED OUT

- Test 1 : Electrical admittance vs. Frequency, free-free
- Test 2 : Displacement vs. input voltage

## ➤ EXTRA FACTORY TESTS

- Test 3 : Gain and linearity of the sensor
- Test 4 : Step response in closed loop
- Test 5 : Stability in closed loop

## ➤ MECHANICAL INTERFACE

- |   |   |   |
|---|---|---|
| <input checked="" type="checkbox"/> [ FI ] Flat Interface | <input type="checkbox"/> [ H ] Flat Interface with hole | <input type="checkbox"/> [ TH ] Flat Interface with threaded hole |
| <input type="checkbox"/> [ SV ] Specific version          | <input type="checkbox"/> [ FF ] Free-free Interface     | <input type="checkbox"/> [ SI ] Specific interface                |

## ➤ AVAILABLE OPTIONS

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> [ SG ] Strain gauges      | <input type="checkbox"/> [ ECS ] Eddy current displacement sensor | <input type="checkbox"/> [ NM ] Non-magnetic sensor |
| <input checked="" type="checkbox"/> [ VAC ] Vacuum |   |   |